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10/590,846	08/25/2006	Masaharu Ueda	1551-0158PUS1	4142
2292 7590 10/01/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
FOGARTY, CAITLIN ANNE				
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1793				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

# Office Action Summary

## Application No.

10/590,846

## Applicant(s)

UEDA ET AL.

## Examiner

CAITLIN FOGARTY

## Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2, 17-20, 22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2, 17-20, 22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 22, 2010 has been entered.

### ***Status of Claims***

2. Claims 2, 17 – 20, 22, and 23 are pending where claim 2 has been amended and claim 23 is new. Claims 1, 3 – 16, and 21 have been cancelled.

### ***Status of Previous Rejections***

3. The 35 U.S.C. 103(a) rejection of claims 1, 2, and 13 – 20 as being unpatentable over JP 2002-226914 in view of JP 11-350075 has been maintained.

The 35 U.S.C. 103(a) rejection of claims 1, 2, 21, and 22 as being unpatentable over WO 03/085149 A1 by use of the English equivalent US 2004/0187981 has been maintained.

The 35 U.S.C. 103(a) rejection of claims 1, 2, 21, and 22 as being unpatentable over JP 2002-226914 in view of US 6,086,685 has been maintained.

### ***Priority***

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 2 on which claim 23 is dependent recites that the value of S is more than or equal to 0.10 and less than or equal to 0.85 seconds. However, if the value of S is 0.85 seconds, then the value range of expression 2 would be indefinite in claims 2 and 23 because the minimum value would be greater than the maximum value. Therefore, claims 2 and 23 are indefinite.

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
8. Claims 2, 17 – 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2002-226914 (hereinafter JP '914) in view of the English machine translation of JP 11-350075 (hereinafter JP '075).

With respect to instant claim 2, the abstract and [0009] of JP '914 teach a method for producing a steel rail having a high content of carbon comprising finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 5-30% which is within the range recited in instant claim 2.

JP '914 differs from instant claim 2 because the composition of the steel rail taught by JP '914 does not contain N as required by claim 2. However, [0008] of JP

'075 discloses a steel rail having a high content of carbon with an overlapping composition as seen in Table 1 below.

**Table 1**

<b>Element</b>	<b>Instant Claim 2 (mass%)</b>	<b>JP '075 (mass%)</b>	<b>Overlapping Range (mass%)</b>
C	0.85 – 1.40	0.60 – 1.20	0.85 – 1.20
Si	0.05 – 2.00	0.10 – 0.50	0.10 – 0.50
Mn	0.05 – 2.00	0.30 – 1.20	0.30 – 1.20
B	0.0001 – 0.0050	0.0001 – 0.0050	0.0001 – 0.0050
N	0.0060 – 0.0200	0.0060 – 0.0200	0.0060 – 0.0200
Optionally: Cr, Mo, Co, Cu, Ni, Ti, Mg, Ca, Al, Zr, V, and/or Nb	0.05 – 2.00 Cr	0.05 – 2.00 Cr	0.05 – 2.00 Cr
	0.01 – 0.50 Mo	0.01 – 0.20 Mo	0.01 – 0.20 Mo
	0.003 – 2.00 Co	0.1 – 2.0 Co	0.1 – 2.0 Co
	0.01 – 1.00 Cu	0.05 – 1.00 Cu	0.05 – 1.00 Cu
	0.01 – 1.00 Ni	0.05 – 1.00 Ni	0.05 – 1.00 Ni
	0.0050 – 0.0500 Ti	0.005 – 0.05 Ti	0.005 – 0.05 Ti
	0.0005 – 0.0200 Mg	---- Mg	---- Mg
	0.0005 – 0.0150 Ca	---- Ca	---- Ca
	0.0100 – 1.00 Al	---- Al	---- Al
	0.0001 – 0.2000 Zr	---- Zr	---- Zr
	0.005 – 0.500 V	0.01 – 0.20 V	0.01 – 0.20 V
	0.002 – 0.050 Nb	0.005 – 0.05 Nb	0.005 – 0.05 Nb
Fe + Impurities	Balance	Balance	Balance

It would have been obvious to one of ordinary skill in the art to use the composition of the steel of JP '075 in the method of JP '914 because the steel of JP '075 may also be used as a rail steel and the addition of nitrogen in the steel prevents the oxidation of the impurity level of aluminum in the steel (see [0013] of JP '075).

JP '914 in view of JP '075 differs from instant claim 2 because they do not specifically teach expression 2. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range (S) recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C and that the number of passes (P) is 2 or more. Therefore, JP '914 in view of JP '075 satisfies expression 2 if, for example, C is 1.20, T is 1000°C, and P is 4

then  $CPT2=0.5$  which is within the claimed range of  $S \leq CPT2 \leq 0.70$  where  $0.10 \leq S \leq 0.85$ .

Since the claimed compositional ranges of claim 2 either overlap or are within the ranges disclosed by JP '075, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed steel rail composition from the steel rail composition disclosed by JP '075 because JP '075 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

In regards to instant claim 17, JP '914 in view of JP '075 does not specifically teach the recited chemical relationship. However, the steel rail of JP '914 in view of JP '075 would satisfy the relationship if, for example, V is 0.05, Nb is 0.005, and N is 0.0060. In addition, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688.

With respect to instant claim 18, the abstract and [0009] of JP '914 disclose that immediately after the finish rolling step, the surface of the rail head is cooled at a cooling rate of  $0.5-50^{\circ}\text{C./s}$  until the surface temperature reaches  $800-950^{\circ}\text{C}$ . These ranges overlap with the ranges recited in instant claim 18.

In regards to instant claims 19 and 20, the abstract of JP '914 teaches that the steel rail is cooled to 800-950°C at a cooling rate of 0.5-50°C./s on the rail surface and then subjected to natural cooling. These ranges overlap with the ranges recited in instant claims 19 and 20. Therefore, it would have been obvious to one of ordinary skill in the art to cool the surface of the rail head of JP '914 in view of JP '075 at a cooling rate of 2-30°C.s until the surface temperature reaches a desired temperature and then allow the rail to further cool at room temperature (natural cooling) because it is well known in the art to cool at a desired cooling rate first to a desired temperature and then allow the cooling to finish naturally at room temperature as evidenced by JP '914.

JP '914 in view of JP '075 differs from instant claim 23 because they do not specifically teach expression 2 with a maximum of 0.59. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range (S) recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C and that the number of passes (P) is 2 or more. Therefore, JP '914 in view of JP '075 satisfies expression 2 if, for example, C is 1.20, T is 1000°C, and P is 4 (therefore  $CPT^2=0.5$ ) because S may be less than 0.5.

Since the claimed rolling interval time, temperature ranges, and cooling rates of claims 2, 17 – 20, and 23 either overlap or are within the ranges disclosed by JP '914, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed rolling interval time, temperature ranges, and cooling rates from the rolling interval time, temperature ranges, and cooling rates disclosed by JP '914 because JP

'914 teaches the same utility (i.e. a method for producing a steel rail having a high content of carbon) in the whole disclosed range.

9. Claims 2, 17, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/085149 A1 by use of the English equivalent US 2004/0187981 (hereinafter US '981).

With respect to instant claim 2, [0028], [0084]-[0109], and [0200]-[0207] of US '981 teach a method for producing a steel rail having a high content of carbon with an overlapping composition as seen in Table 2 below.

**Table 2**

<b>Element</b>	<b>Instant Claim 2 (mass %)</b>	<b>US '981 (mass %)</b>	<b>Overlapping Range (mass %)</b>
C	0.85 – 1.40	0.65 – 1.40	0.85 – 1.40
Si	0.05 – 2.00	0.05 – 2.00	0.05 – 2.00
Mn	0.05 – 2.00	0.05 – 2.00	0.05 – 2.00
B	0.0001 – 0.0050	0.0001 – 0.0050	0.0001 – 0.0050
N	0.0060 – 0.0200	0.0040 – 0.0200	0.0060 – 0.0200
Optionally: Cr, Mo, Co, Cu, Ni, Ti, Mg, Ca, Al, Zr, V, and /or Nb	0.05 – 2.00 Cr	0.05 – 2.00 Cr	0.05 – 2.00 Cr
	0.01 – 0.50 Mo	0.01 – 0.50 Mo	0.01 – 0.50 Mo
	0.003 – 2.00 Co	0.10 – 2.00 Co	0.10 – 2.00 Co
	0.01 – 1.00 Cu	0.05 – 1.00 Cu	0.05 – 1.00 Cu
	0.01 – 1.00 Ni	0.05 – 1.00 Ni	0.05 – 1.00 Ni
	0.0050 – 0.0500 Ti	0.0050 – 0.0500 Ti	0.0050 – 0.0500 Ti
	0.0005 – 0.0200 Mg	0.0005 – 0.0200 Mg	0.0005 – 0.0200 Mg
	0.0005 – 0.0150 Ca	0.0005 – 0.0150 Ca	0.0005 – 0.0150 Ca
	0.0100 – 1.00 Al	0.0080 – 1.00 Al	0.0100 – 1.00 Al
	0.0001 – 0.2000 Zr	0.0001 – 0.2000 Zr	0.0001 – 0.2000 Zr
	0.005 – 0.500 V	0.005 – 0.50 V	0.005 – 0.50V
	0.002 – 0.050 Nb	0.002 – 0.050 Nb	0.002 – 0.050 Nb
Fe + Impurities	Balance	Balance	Balance

US '981 also teaches that the method comprises finish rolling the rail in two or more

consecutive passes with a reduction rate per pass of a cross-section of the rail of 1-30% which overlaps with the instant recited range.



US '981 differs from instant claim 2 because it does not specifically teach expression 2. However, [0207] of US '981 discloses that the time between rolling passes (S) is not longer than 10 seconds which overlaps with the time range (S) recited in the instant claim. US '981 also teaches in [0202] and [0204] that the surface temperature of the rail (T) is 850-1000°C and that the number of passes (P) is 2 or more. Therefore, US '981 satisfies expression 2 if, for example, C is 1.20, T is 1000°C, and P is 4 then  $CPT^2 = 0.5$  which is within the claimed range of  $S \leq CPT^2 \leq 0.70$  where  $0.10 \leq S \leq 0.85$ .

In regards to instant claim 17, US '981 does not specifically teach the recited chemical relationship. However, the steel rail of US '981 would satisfy the relationship if, for example, V is 0.05, Nb is 0.005, and N is 0.0060. In addition, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688.

Regarding instant claim 22, as seen in Table 2 above, US '981 teaches that the rail contains 0.0001-0.2000 mass% Zr which is the same as the instant recited range.

US '981 differs from instant claim 23 because it does not specifically teach expression 2. However, [0207] of US '981 discloses that the time between rolling

passes (S) is not longer than 10 seconds which overlaps with the time range (S) recited in the instant claim. US '981 also teaches in [0202] and [0204] that the surface temperature of the rail (T) is 850-1000°C and that the number of passes (P) is 2 or more. Therefore, US '981 satisfies expression 2 if, for example, C is 1.20, T is 1000°C, and P is 4 then  $CPT2=0.5$  which is within the claimed range of  $S \leq CPT2 \leq 0.59$  where  $0.10 \leq S \leq 0.85$ .

Since the claimed composition, rolling interval time, rolling reduction, and temperature range of claims 2, 17, 22, and 23 either overlap or are within the ranges disclosed by US '981, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed composition, rolling interval time, rolling reduction, and temperature range from the composition, rolling interval time, rolling reduction, and temperature range by US '981 because US '981 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

10. Claims 2, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2002-226914 (hereinafter JP '914) in view of US 6,086,685 (hereinafter US '685).

With respect to instant claims 2 and 22, the abstract and [0009] of JP '914 teach a method for producing a steel rail having a high content of carbon comprising finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 5-30% which is within the range recited in instant claim 2.

JP '914 differs from instant claims 2 and 22 because it does not teach an overlapping composition. However, col. 3 lines 14-19 and col. 6 line 1-col. 7 line 13 of US '685 disclose a steel rail having a high content of carbon with an overlapping composition as seen in Table 3 below.

**Table 3**

<b>Element</b>	<b>Claims 2 &amp; 22 (mass %)</b>	<b>US '685 (mass %)</b>	<b>Overlapping Range (mass %)</b>
C	0.85 – 1.40	0.41 – 1.3	0.85 – 1.3
Si	0.05 – 2.00	≤ 0.93	0.05 – 0.93
Mn	0.05 – 2.00	0.31 – 2.55	0.31 – 2.00
B	0.0001 – 0.0050	≤ 0.006	0.0001 – 0.0050
N	0.0060 – 0.0200	----	----
Optionally: Cr, Mo, Co, Cu, Ni, Ti, Mg, Ca, Al, Zr, V, and/or Nb	0.05 – 2.00 Cr	0.21 – 2.45 Cr	0.21 – 2.00 Cr
	0.01 – 0.50 Mo	≤ 0.88 Mo	0.01 – 0.50 Mo
	0.003 – 2.00 Co	---- Co	---- Co
	0.01 – 1.00 Cu	---- Cu	---- Cu
	0.01 – 1.00 Ni	≤ 2.4 Ni	0.01 – 1.00 Ni
	0.0050 – 0.0500 Ti	≤ 0.28 Ti	0.0050 – 0.0500 Ti
	0.0005 – 0.0200 Mg	---- Mg	---- Mg
	0.0005 – 0.0150 Ca	---- Ca	---- Ca
	0.0100 – 1.00 Al	≤ 0.06 Al	0.0100 – 0.06 Al
	0.0001 – 0.2000 Zr	≤ 0.28 Zr	0.0001 – 0.2000 Zr
	0.005 – 0.500 V	≤ 0.39 V	0.005 – 0.39 V
	0.002 – 0.050 Nb	≤ 0.28 Nb	0.002 – 0.050 Nb
<b>Fe + Impurities</b>	<b>Balance</b>	<b>Balance</b>	<b>Balance</b>

US '685 differs from instant claim 2 because it does not specifically teach that the steel rail comprises nitrogen. However, the claimed minimum amount of 0.0060 mass% N is an impurity level and it is well known in the art that nitrogen is a naturally occurring impurity in steel. It would have been obvious to one of ordinary skill in the art to use the composition of the steel of US '685 in the method of JP '914 because the steel of US '685 may also be used as a rail steel and the range of components of US '685 allows for a reasonably priced chemical alloy composition (see col. 7 lines 54-56 of US '685).

JP '914 in view of US '685 differs from instant claim 2 because they do not specifically teach expression 2. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C and that the number of passes (P) is 2 or more which overlaps with the claimed range of P. Therefore, JP '914 in view of US '685 satisfies expression 2 if, for example, C is 1.20, T is 1000°C, and P is 4 then  $CPT2=0.5$  which is within the claimed range of  $S \leq CPT2 \leq 0.70$  where  $0.10 \leq S \leq 0.85$ .

In regards to instant claim 22, as seen in Table 3 above, US '685 teaches that the rail contains  $\leq 0.28$  mass% Zr which overlaps with the instant recited range.

JP '914 in view of US '685 differs from instant claim 23 because they do not specifically teach expression 2. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C and that the number of passes (P) is 2 or more which overlaps with the claimed range of P. Therefore, JP '914 in view of US '685 satisfies expression 2 if, for example, C is 1.20, T is 1000°C, and P is 4 then  $CPT2=0.5$  which is within the claimed range of  $S \leq CPT2 \leq 0.59$  where  $0.10 \leq S \leq 0.85$ .

Since the claimed rolling interval time, reduction rate, and number of passes of claims 2 and 23 either overlap or are within the ranges disclosed by JP '914, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed

rolling interval time, reduction rate, and number of passes from the steel rail composition disclosed by US '685 because US '685 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

Similarly, since the claimed compositional ranges of claims 2 and 22 either overlap or are within the ranges disclosed by US '685, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed steel rail composition from the steel rail composition disclosed by US '685 because US '685 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

#### ***Response to Arguments***

11. Applicant's arguments filed July 22, 2010 have been fully considered but they are not persuasive.

##### ***Arguments are summarized as follows:***

Claim 2 has been amended such that the conditions of the finish rolling satisfy the following relationship  $S \leq CPT2 \leq 0.70$ , thus setting the upper limit for CPT2 at 0.7. New claim 23 sets the upper limit for CPT2 at 0.59. However, each of the Examiner's rejections of claim 2 rely upon a calculation of CPT2 equal to 0.8. Thus, the prior art fails as a whole to suggest or disclose the presently claimed upper limit of 0.70 or 0.59. There is no reason to modify the various parameters to arrive at the presently claimed CPT2 value. Applicants submit that any attempt to rationalize arriving at the present requirement of CPT2 would amount to an impermissible "obvious to try" analysis.

*Examiner's responses are as follows:*

The Examiner addressed the amended claim 2 and new claim 23 limitations regarding CPT2 in the above rejections. The Examiner maintains the position that since JP '914 in view of JP '075, US '981, and JP '914 in view of US '685 teach an overlapping composition of carbon (C), an overlapping maximum surface temperature of a rail head (T), an overlapping number of passes (P), and an overlapping maximum rolling interval (S) they satisfy claimed expression 2. Applicant has not demonstrated the criticality of expression 2 and therefore the Examiner maintains that a prima facie case of obviousness exists because JP '914 in view of JP '075, US '981, and JP '914 in view of US '685 teach overlapping ranges for all of the variables in the expressions and therefore satisfy the expression 2.

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

CF